Having described my invention I claim:

1. A reversing valve for a vapor compression refrigeration system comprising:

a. a housing defining a chamber with a high pressure port, a low pressure port and first and second system ports opening into said chamber through a chamber wall;

b. a valve member disposed in said housing for shifting movement generally parallel to said wall between a first position wherein said valve member communicates said low pressure port with said first system port while communicating said high pressure port with said second system port and a second position wherein said valve member communicates said low pressure port with said second system port while communicating said high pressure port with said first system port, said valve member blocking communication between said high and low pressure ports when in said first and second positions;

c. said valve member subjected to a net differential pressure force acting to firmly seat said valve member in said first or second position for preventing leakage between said high pressure port and said low pressure port; and,

d. an actuator for reversing the direction of the net differential pressure force acting on said valve member to unseat said valve member and move it away from its first or second position for facilitating said shifting movement to said other position.

2. The valve claimed in claim 1 wherein said actuator comprises control valving having a closed position when said valve member is seated in one position, said control valving opened to enable reversal of the differential pressure force and unseating of said valve member.

3. The valve claimed in claim 1 wherein said actuator further comprises a valve member actuator mechanism for shifting said valve member between said first and second positions when said valve member is unseated.

4. The valve claimed in Claim 3 wherein said actuator mechanism shifts said valve member about an axis of rotation.

5. The valve claimed in Claim 3 wherein said actuator mechanism comprises spring means which is loaded when said valve member is seated and which unloads when the valve member is unseated to supply energy for shifting said valve member.

6. A valve for reversing the direction of flow in a fluid system comprising:

a. a housing defining a high pressure port, a low pressure port and first and second system ports;

b. a valve member in said housing, said valve member seated in a first position wherein said valve member communicates said low pressure port with said first system port and blocks leakage between said high pressure port and said low pressure port, said valve member subjected to differential pressure seating forces strongly urging said valve member to said first position;

c. said valve member seated in a second position wherein said valve member communicates said low pressure port with said second system port and blocks leakage between said high pressure port and said low pressure port, said valve member subjected to differential pressure seating forces strongly urging said valve member to said second position; and,

d. an actuator for moving said valve member between said positions, said actuator structure comprising

control valving operable to reverse the direction of the differential pressure force acting on said valve member in one of said first or second positions for unseating said valve member, and

an actuator mechanism acting on said valve member for shifting said unseated valve member into alignment with said other position.

7. The valve claimed in claim 6 wherein said actuator mechanism comprises a cam transmission operated to rotate said valve member about an axis relative to said housing.

8. The valve claimed in Claim 6 wherein actuator mechanism comprises a fluid pressure responsive piston assembly for shifting said unseated valve member, said piston assembly comprising a piston member reciproctable with respect to said housing in response to changes in applied differential fluid pressure and a spring opposing piston motion in one direction and effecting piston motion in the opposite direction.

9. The valve claimed in Claim 8 wherein said spring and piston coact to exert a seating force on said valve member after the valve member has shifted.

10. A method of reversing the direction of flow in a fluid system comprising:

communicating a high pressure port, a low pressure port and first and second system ports to a valve chamber via a valve seat through which the ports open;

stationing a valve member in said chamber for movement with respect to the valve seat between first and second positions;

applying a differential pressure force to the valve member in a direction forcing the valve member into seating and sealing engagement with the valve seat in said first position on the valve seat;

directing system fluid through the system in one direction by communicating the low pressure port with the first system port via a valve member flow passage when the valve member is seated in said first position, the high pressure port communicating with the second system port via said chamber;

biasing the valve member to move from the first position to the second position;

dissipating said differential pressure force to enable unseating said valve member;

shifting the valve member in response to the biasing force from said first position to the second position along a path of travel where the valve member is disengaged from the seat;

reestablishing said differential pressure force to urge the valve member toward engagement with the valve seat in its second position; and,

reversing the direction of fluid flow through the system by communicating the low pressure port with the second system port via said valve member flow passage when the valve member is seated in said second position, the high pressure port and first system port communicating via said chamber.

12. A method of reversing the direction of flow in a fluid system:

communicating a high pressure port, a low pressure port and first and second system ports to a valve chamber via a valve seat through which the ports open;

stationing a valve member in said chamber for reciprocatable movement with respect to the valve seat and applying a first differential pressure force to the valve member for forcing the valve member into seating and sealing engagement with the valve seat;

communicating the high pressure port with the first system port while communicating the low pressure port with the second system port by seating the reciprocatable valve member in a first position on the valve seat to direct system fluid through the system in one direction;

communicating the high pressure port with the second system port while communicating the low pressure port with the first system port by seating the reciprocatable valve member in a second position on the valve seat to reverse the direction of fluid flow through the system;

biasing the valve member to shift from its current position to its other position;

eliminating said first differential pressure force;

applying a second differential pressure force to the valve member for moving the valve member away from the valve seat; shifting the valve member toward the other position with the biasing force; and,

reestablishing said first differential pressure force to seat the valve member on the valve seat in its other position and bias the valve member to shift from its current position to its other position.

12. A flow reversing valve in a refrigeration system comprising:

a. a housing defining a chamber;

b. four refrigerant ports opening into said chamber comprising a high pressure port communicating said chamber with refrigerant discharged from a system refrigerant compressor, a low pressure port communicating said chamber with a compressor intake, and first and second system ports for communicating said chamber with system heat exchangers;

c. a valve member disposed in said chamber and defining a flow passage for communicating said low pressure port and alternative ones of said first and second system ports;

d. seat structure associated with said low pressure port and said system ports, said seat structure sealingly engaging said valve member when said valve member is in a first position where said flow passage communicates said low pressure port and said first system port, said seat structure sealingly engaging said valve member when said valve member is in a second position where said flow passage communicates said low pressure port and said second system port; and,

e. an actuator for moving said valve member relative to said seat structure between said first and second positions along a path of travel where said valve member and said seat structure are spaced apart;

f. said actuator comprising pressure control valving for establishing a pressure differential across said valve member for forcing said valve member and said seat into sealing engagement when said valve member is in said first or second position said control valving dissipating said pressure differential to enable disengaging said valve member and seat structure.

13. A method of operating a reversing valve to alternately communicate a high pressure port with first and second system ports while thereby alternately communicating a low pressure port with the second and first system ports, respectively, comprising the steps of:

a. positioning the valve member in a first position for communicating the low pressure port with the first system port;

b. establishing a first pressure differential across the valve member by communicating a first valve member pressure area with the low pressure port and a second, opposed valve member pressure area with a greater pressure;

c. forcibly seating the valve member against a seating face in the first position so that leakage between said high pressure port and said low pressure port along the seating face is substantially blocked;

d. storing valve member actuating energy obtained from said first pressure differential;

e. dissipating said first pressure differential to enable valve member shifting between said positions with minimal resistance due to valve member seating force; and,

f. expending stored actuating energy by shifting said valve member toward said second position.

14. A method of operating a reversing valve to alternately communicate a high pressure port with a first system port while communicating a low pressure port with a second system port and to communicate the high pressure port with the second system port while communicating the low pressure port with the first system port comprising the steps of:

a. positioning the valve member in a first position for communicating the low pressure port with the first system port;

b. establishing a first pressure differential across the valve member by communicating a first valve member pressure area with the low pressure port and a second, opposed valve pressure area with a greater pressure;

c. forcibly seating the valve member against a seating face in the first position so that communication between said high pressure port and said low pressure port is substantially blocked;

d. communicating said first and second pressure areas to substantially change said pressure differential;

e. moving said valve member out of engagement with the seating face;

f. shifting said valve member into juxtaposition with said second position; and,

g. seating the valve member against a seating face in the second position so that communication between said high pressure port and said low pressure port is substantially blocked.